NEW PASSENGER TERMINAL
BID PACKAGE 1 - Sitework, Structure, Enclosure
VOLUME 2 OF 2
ARCHITECTURAL, STRUCTURAL, MECHANICAL
ELECTRICAL, PLUMBING
CONFORMANCE SET
JULY 12, 2010
GENERAL NOTE
ALL STRUCTURE EXPOSED TO PUBLIC VIEW TO BE PAINTED WITH A
HIGH PERFORMANCE COATING
DESIGN LOADS:

EXPANSION AND ADHESIVE ANCHORS:

Primary Frame Wind Data:

Reynolds, Smith and Hills, Inc.
contractor’s means, methods, sequences or procedures of construction. Contractor shall recognize and understand their duties in the specification and under the building code for this project.

For 1/2", 5/8", and 3/4" diameter expansion anchors provide 4 3/4" embed, UNO on plan.

Stairs, Corridors and Lobbies: 100 psf (not reducible)

Stair Tread Concentrated Load: 300 lbs

Mechanical Rooms: 150 psf (not reducible)

Exterior Site Surcharge Loads:

100 psf

Special architectural floor finishes. REINFORCED MASONRY:

Minimum 6" laps at all splices. Vertical reinforcing shall be held in place by rebar positioners, crossties, chairs, or tying to every other layer of horizontal reinforcing. All horizontal reinforcing shall be lap spliced.

Concrete Masonry- Prism (f'm):

Controlled Low 1,200 psi (at 5 days) Maximum Strength Material (CLSM) 500 psi (at 5 days) Minimum concrete mix design strength 3,000 psi

All concrete not otherwise noted 4,000 psi

MATERIAL PROPERTIES:

Concrete

Slab on Grade:         3" bottom      Footings:  3" clear bottom and sides                     2" clear top      Walls:     #5 and smaller 1 1/2" clear earth or weather face #6 and greater 2" clear earth o r weather face

Composite Beams:

Studs, Joists, Braces-18 ga. and lighter 33,000 psi

Stud Roofing, Shingles, Bar or Structural Steel .150 psi

Stains and Patterns:

 báo cáo toàn văn: ...
NON-COMPOSITE STEEL FLOOR DECK:

Non-composite steel floor deck shall be as noted on plan. Detail, manufacture and install non-composite steel floor deck and accessories in accordance with the SDI specifications of Reynolds, Smith and Hills, Inc. Refer to drawings for non-composite steel floor deck fastening requirements. Powder actuated or pneumatically driven fasteners are not allowed. Where spray-on fireproofing of the deck is required, the contractor shall verify that the deck finish is compatible with the proposed fireproofing material to ensure proper bonding of the material. Coordinate locations and requirements with the architect. Provide reinforcement or frames for deck openings as indicated on the drawings.

The design and connection detailing of all light gauge material including, but not limited to exterior studs, bearing studs, headers, jambs, joists, rafters and anchorages shall be by the Light Gauge Supplier. The design for Stud in exterior walls shall be minimum 600S162-43 (6”-18 gauge) studs at 16” OC. See architectural specifications or drawings for size, extent, and location of interior non-load bearing walls.

Temporary bracing shall be furnished by the light gauge supplier and framing installer and maintained until the elements can be properly supported by the structural system. All framing components shall be sized to resist both gravity and lateral loads. For wall studs providing lateral support to other materials, provide L/360. Splices in studs, joists, and headers, are not permitted, unless approved in writing by the structural engineer. Framing components may be pre-assembled into panels prior to erecting. Preassembled panels shall be square and plumb and properly anchored to the structure. Field connections shall be made by field personnel only.

SPECIAL INSPECTION SCHEDULE

| Special Inspection Requirements of Structural Elements Per ASCE 7-95, CHAP 11.5 |
|---|---|---|---|
| 1. General | Permissible exceptions listed in code. |
| 2. Load and General Inspection | Permissible exceptions listed in code. |
| 3. Structural | Permissible exceptions listed in code. |
| 4. Steel Frames | Permissible exceptions listed in code. |
| 5. Concrete | Permissible exceptions listed in code. |
| 7. Masonry | Permissible exceptions listed in code. |
| 8. Special Inspections | Permissible exceptions listed in code. |

Please see referenced tables for exceptions.

I hereby certify that this plan, specification, drawing and its construction are in compliance with the laws of the State of Minnesota.

Print Name: Paul A. Johnson
Signature:
License No.: 20379
Reg. No.: 213-1882-091

Reynolds, Smith and Hills, Inc.

Duluth International Airport
Duluth, Minnesota

NEW TERMINAL DESIGN

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<tr>
<th>Design</th>
<th>SJA ARCHITECTS</th>
</tr>
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<tbody>
<tr>
<td>Tel: (218) 724-8578 / Fax: (218) 724-8717</td>
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<table>
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<tr>
<th>Structural Engineers:</th>
<th>MBJ Consulting Eng.</th>
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<tbody>
<tr>
<td>Tel: (218) 722-1056 / Fax: (218) 722-9306</td>
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<table>
<thead>
<tr>
<th>Baggage Handling Systems Consultants:</th>
<th>COSENTINI</th>
</tr>
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<tbody>
<tr>
<td>1 East Wacker Drive, Suite 103, Chicago IL 60601</td>
<td></td>
</tr>
<tr>
<td>Tel: (312) 670-1800 / Fax: (312) 670-1801</td>
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| Structural Welding Code - Sheet Steel, D1.3 - Current Edition. Welders shall be qualified in accordance with AWS D1.3 and shall be experienced in light gauge welding. All light gauge material to be welded must be nominal 16 gauge or thicker. | Welding shall conform to the American Welding Society (AWS) "Structural Welding Code - Sheet Steel, D1.3 - Current Edition. Welders shall be qualified in accordance with AWS D1.3 and shall be experienced in light gauge welding. All light gauge material to be welded must be nominal 16 gauge or thicker. |

| Touch up all light gauge material at welds with zinc-rich paint. | Align load bearing wall studs with floor or roof joists. |

| Permissible exceptions listed in code. | Permissible exceptions listed in code. |

Table 1704.3 Table 1704.4
1. REFER TO S110 FOR TYPICAL PLAN NOTES.
1. TOP OF SLAB ELEVATION VARIES. SEE PLAN 3. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL DIMENSIONS, ELEVATIONS, NOTES AND ADDITIONAL DETAIL. SEE SHEET S001 FOR TYPICAL ABBREVIATIONS AND S002 AND S003 FOR GENERAL STRUCTURAL NOTES.

2. TOP OF SLAB ELEVATION VARIES. SEE PLAN 3. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL DIMENSIONS, ELEVATIONS, NOTES AND ADDITIONAL DETAIL. SEE SHEET S001 FOR TYPICAL ABBREVIATIONS AND S002 AND S003 FOR GENERAL STRUCTURAL NOTES.

3. S1 ON PLAN INDICATES SLAB ON METAL DECK MARK. D1 ON PLAN INDICATES ROOF FLOOR AND/OR ROOF WITH ARCHITECTURAL AND OTHER CONSULTANT DRAWINGS AS THEM. MINOR OPENINGS ARE NOT SHOWN ON STRUCTURAL DRAWINGS.

4. HEADED STUDS ON PLAN ARE THUS: 3/4" DIAMETER x 0' - 5" LONG. SEE GENERAL REQUIREMENTS ON BEAMS AND GIRDERS.

5. * ON PLAN INDICATES DIMENSION TO BE VERIFIED BY THE CONTRACTOR WITH CONFORMANCE.
Top of steel beam elevation is referenced (+ or -) from elevation 49' - 6".
Top of slab elevation varies. See plan.
Refer to architectural drawings for additional dimensions, elevations, angles and location of work points. See sheet S001 for typical abbreviations and S002 and S003 for general structural notes.
Do not cut control joints in slabs on metal deck.
Verify exact size, location and quantity of required openings through the floor and/or roof with architectural and other consultant drawings as necessary.
Coordinate required openings with all trades that require electrical requirements as necessary prior to construction.

1. Top of steel beam elevation is referenced (+ or -) from elevation 49' - 6".
2. Top of slab elevation varies. See plan.
3. Refer to architectural drawings for additional dimensions, elevations, angles and location of work points. See sheet S001 for typical abbreviations and S002 and S003 for general structural notes.
4. Do not cut control joints in slabs on metal deck.
5. Verify exact size, location and quantity of required openings through the floor and/or roof with architectural and other consultant drawings as necessary.
6. Coordinate required openings with all trades that require electrical requirements as necessary prior to construction.
Conformance Set 07-12-10

DATE ISSUED: 07-12-10

REVIEWED BY: PAJ / CWB

AEP PROJECT NUMBER: 213-1882-091

NOTES:

1. SEE SCHEDULE FOR BASE PLATE AND ANCHOR ROD DIMENSIONS.
2. DIMENSION "N" IS PARALLEL TO WF WEB OR LONGER HSS DIMENSION.
3. ANCHOR RODS SHALL BE ASTM F1554, GRADE 36.
4. BASE PLATES SHALL BE ASTM A36, MINIMUM.
5. MILL COLUMN BASE AND/OR BASE PLATE AS NECESSARY FOR FULL CONTACT.
6. ANCHOR RODS SHALL SET BY TEMPLATE AND NOT BE SET INTO CONCRETE AFTER CONCRETE IS CAST.
8. FOR ALL UNDESIGNATED BASE PLATES, MINIMUM "N" = MEMBER SIZE + 4". MINIMUM "B" = MEMBER WIDTH + 1". MINIMUM "T" = 1/2". MINIMUM 4 - 3/4" DIAMETER ANCHOR RODS.

2. AT HSS ROUND COLUMNS, FABRICATOR MAY OPT TO SUBMIT EQUIVALENT PIPE SECTION TO A/E FOR REVIEW IN LIEU OF HSS ROUND COLUMN SHOWN.

1" CLR TO TIES, MIN
2" CLR TO TIES, MIN
10" CLR TO TIES, MIN
2" CLR TO TIES, MIN
10" CLR TO TIES, MIN
2" CLR TO TIES, MIN

1. SEE PLAN FOR LOCATIONS.

PL 3/4 x 6 x 1'-3" (LDH) (VERIFY DIMS AND T.O. PEL W/CURTAIN WALL SUPPLIER PRIOR TO INSTALLATION)

CONFORMANCE
1. **TYPICAL INTERIOR WF COLUMN FOOTING DETAIL**

2. **TYPICAL WF COLUMN, CONCRETE PIER AND FOOTING DETAIL**

3. **OVER-EXCAVATION WITH LEAN CONCRETE/CLSM FILL DETAIL**

4. **TYPICAL COLUMN ISOLATION JOINT**

5. **BAR LAP SCHEDULE**

6. **TYPICAL STOOP DETAIL**

7. **TYPICAL FOOTING STEP**

8. **SECTION THRU ELEVATOR PIT**

9. **TYPICAL CONSTRUCTION/CONTROL JOINTS FOR CONCRETE WALLS**

10. **TYPICAL CONCRETE CORNER BAR PLACING DETAIL**

11. **TYPICAL SLAB ON GRADE CONSTRUCTION DETAIL**

12. **TYPICAL ADDITIONAL BAR PLACING DETAIL FOR WALL OPENING**
WALL REINFORCING SCHEDULE

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<th>OPENING CODES</th>
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WATERPROOFING SCHEDULE

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FOOTING SCHEDULE

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WALL FOOTING TYPE

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<tr>
<td>W1</td>
<td>24&quot; OC</td>
</tr>
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COMMENTS

#5 AT 24" OC AS NOTED ON DETAILS

8" CMU

Reynolds, Smith and Hills, Inc.
4525 Airport Approach Rd, Ste A

NON-LOAD BEARING MASONRY PARTITION

www.rsandh.com

TYPICAL CMU LINTEL BEARING DETAIL

TYPICAL CMU WALL DETAIL

TYPICAL VERTICAL REINFORCING AT MASONRY CORNER DETAIL

TYPICAL HORIZONTAL REINFORCING AT MASONRY CORNER

FLOOR DECK PARALLEL TO WALL

FLOOR DECK PERPENDICULAR TO WALL

ROOF DECK PARALLEL TO WALL

ROOF DECK PERPENDICULAR TO WALL

LINEAR DECKS

1. REFER TO TYPICAL DETAILS FOR DOWELS AT BOTTOM OF CMU WALLS AND BRACING AT TOP OF WALL.
2. REFER TO GENERAL STRUCTURAL NOTES FOR CONCRETE COREFILL.
3. PROVIDE 9 GA GALVANIZED DUR-O-WALL JOINT REINF AT 16" OC, TYP (8" OC IN PARAPET WALLS)
4. USE LINTEL BLOCKS FOR ALL CMU LINTELS.
5. PROVIDE 8" DEEP BOND BM W/2 - #5 CONT BOTTOM AT ALL SILLS.

REFERENCES

MBJ Consulting Eng.
501 Lake Avenue South, Suite 300, Duluth MN 55802
TEL: (218) 724-8578 / FAX: (218) 724-8717

MBJ Transfer Printing
1402 Avenue D, 3rd Floor, 651-294-0662

MN1 Architects
200 Second Avenue North, Suite 300, Minneapolis MN 55401
TEL: (612) 622-4000 / FAX: (612) 622-4009

BNP Associates Inc.
213-1882-091

Landscape Consultants:

C 2009 REYNOLDS, SMITH AND HILLS INC.

BID PACKAGE 1

CONFORMANCE SET 07-12-10

REVIEWED BY:

SHEET TITLE

CONFORMANCE DETAILS

APPOLD DESIGN

S503
**Typical Embed Plate - Double Angle Connection**

1. **Type of Connection:** Double Angle Connection
2. **Embed Plate Size:** 3" x 3" x 3/16" x 3'-6" - TYP
3. **Key Details:**
   - See plan for details of embed plate configuration.
   - Use two angle connections to all beams framing into concrete embed plates.

**Typical Embed Plate Schedule**

- **Beam Size:**
  - B: 12" C:
  - B8: 14" C10:
  - B12: 16" C14:
  - B16: 18" C18:
  - B20: 21" C21:
  - B24: 24" C24:
  - B27: 27" C27:
  - B30: 30" C30:
  - B33: 33" C33:
  - B36: 36" C36:

- **Minimum Embed Length:**
  - A-A: 12" C12:
  - A-A: 16" C16:
  - A-A: 20" C20:
  - A-A: 24" C24:
  - A-A: 27" C27:
  - A-A: 30" C30:
  - A-A: 33" C33:
  - A-A: 36" C36:

- **Details:**
  - See plan for embed plate details.
  - Embedded length corresponds to beam size in schedule.

**Typical Framing at Floor Openings (6'-32" Max)**

1. **Condition at Beam:**
   - El = See Plan
2. **Condition at Steel Beam:**
   - El = See Plan
3. **Condition at Steel Joist:**
   - El = See Plan
4. **Condition at Steel Joist:**
   - El = See Plan

**Framing at Floor Openings (6'-32" Max) Through Slab**

1. **Condition at Opening:**
   - El = See Plan
2. **Condition at Opening:**
   - El = See Plan
3. **Condition at Opening:**
   - El = See Plan

**Typical Section at Composite Deck Perpendicular to Beam**

1. **Details:**
   - See plan for details of composite deck configuration.
   - Use two angle connections to all beams framing into concrete embed plates.

**Typical Section at Composite Deck Parallel to Beam**

1. **Details:**
   - See plan for details of composite deck configuration.
   - Use two angle connections to all beams framing into concrete embed plates.

**Typical Roof Deck Attachment Detail**

1. **Details:**
   - See plan for details of roof deck attachment configuration.
   - Use two angle connections to all beams framing into concrete embed plates.
PLACE STUDS IN THE PORTION OF DECK RIB CLOSEST TO THE BEAM END WHEN POSSIBLE

LIGHT GA DECK CLOSURE PLATE (BY DECK SUPPLIER)

STEEL STUDS, TYP

AIRFLOOR SYSTEM - DESIGN BY OTHERS

Reynolds, Smith and Hills, Inc.

36" MAX SPACING

TRIPLE - ALT

TRIPLE

SINGLE

3" MIN

2" 1/2" MIN

1/4 2-12

LOW FLUTE IS OFF-CENTER OF BEAM)

3" MIN

BEAM)

1/2" CLR

1/2" COL CAP PL - T.O. CAP TO MATCH T.O. STEEL

BENT PL AS PER 4/S702

T.O. STEEL

T.O. STEEL

T.O. STEEL

90°

60°

30°

VERT SLIP CONN AS REQ'D

VERT SLIDE CONN AS REQ'D

STUD GRAVITY CONN TO BENT PL

STUD GRAVITY CONN TO BENT PL

3/4" = 1'-0"

3/4" = 1'-0"

3/4" = 1'-0"

DATE ISSUED:

REVIEWED BY:

DESIGNED BY:

Print Name:

Reg. No.:

07-12-10

20379

CWB

Print Name:

Reg. No.:

07-12-10

20379

CWB

Print Name:

Reg. No.:

07-12-10

20379

CWB
3/4" x 6" TOP PLATE. BEND PLATE TO MATCH TOP OF BEAMS.

1/2" THICK STIFFENER PL

METAL ROOF DECK - SEE PLAN

1/4 5STIFF TO CHANNEL - SEE PLAN

5/16" FULL FITTED STIFFENER AT EACH TAPERED BEAM FACE OF CHANNEL

3/8" x 9" SHEAR TAB CONN W/ 3 - 3/4" DIA BOLTS AT 3" OC

1 1/2" x 14" DIA CAP PL W/ 4 - 1 1/4" DIA GR 55 ANCHOR RODS EMBEDDED IN TOP OF CONC COL. LAP ANCHORS AS NOTED. PROVIDE STANDARD HOLES IN CAP PL FOR ANCHORS. FIELD VERIFY ANCHOR LOCATIONS.

1" NON-SHRINK GROUT

HSS 4 x 4 BEYOND - SEE PLAN

HSS 14 x 10 ABOVE - SEE PLAN

L3 x 3 x 5/16 AT EACH SIDE OF HSS 4 x 4, TYP

1" x 12" DIA CAP PL W/ 4 - 1" DIA GR 55 ANCHOR RODS EMBEDDED IN TOP OF CONC COL. LAP ANCHORS AS NOTED. PROVIDE STANDARD HOLES IN CAP PL FOR ANCHORS. FIELD VERIFY ANCHOR LOCATIONS.

2 ADDL TIES AT 3" OC

NOTES:
1. DECK AND HSS 4 x 4'S NOT SHOWN FOR CLARITY. SEE 2/S705 FOR INFORMATION NOT SHOWN.
2. AS ALTERNATE, 4 THICK PLATE MAY BE PROVIDED TO MATCH PROFILE OF WITH COLUMN REINF

1" NON-SHRINK GROUT

1" = 1'-0"
CANTILEVER 3'-0" MAX

LIGHT POLE - SEE ARCH AND ELEC SLEEVE CONN OVER HSS - DESIGN AND SUPPLY BY LIGHT POLE SUPPLIER

CURTAIN WALL - SEE ARCH

HSS 5 x 5 x 1/2 x 6'-0" CENTERED ON GIRDER

SEE 11/S703 FOR ADDL INFO

HSS 7 x 7 BRACE - SEE SHEET S301

1/2" GAP BETWEEN HSS BRACE AND MC6 TO ALLOW FOR ERECTION

MC6 x 12 x 5'-0"

TOP FLANGE EXTENSION x 5'-0" EACH SIDE (CJP)

SEE TYP DETAIL 3/S702 BEYOND

G 8" 8" 8"

TYP TOP AND BOTT G 8" 8" 8"

3/8" COL CAP PLATE

3/8" TAB PLATES WITHIN TUBES, 4 SIDES TYP

STEEL STUDS AND WALL FINISH - SEE ARCH

CONN BY STUD SUPPLIER

SECTIONS

1. SECTION

2. SECTION

3. SECTION

4. SECTION

5. SECTION

6. SECTION

7. SECTION

8. SECTION

9. SECTION

10. SECTION AT HSS CANTILEVER

11. SECTION BETWEEN HSS CANTILEVER

DULUTH INTERNATIONAL AIRPORT
DULUTH, MN
NEW TERMINAL DESIGN

UNALTERED

SJA ARCHITECTS

MBJ CONSULTING ENG.

BNP ASSOCIATES INC.

COSENTINI

APPOLD DESIGN
BID PACKAGE 1 NOTE:

ELECTRICAL EQUIPMENT SHOWN IN DETAILS 1, 2 AND 3 ARE NOT IN CONTRACT AND SHOWN FOR REFERENCE ONLY.
### Table 1

<table>
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**Typical Underground Piping Stub Up Detail**

1. Use proper bends in accordance with local codes and standards.
2. All pipes should be color-coded as per the above table.
3. Ensure all connections are properly tightened and secured.